

WHAT IS CLAIMED IS:

1 1. A mounting interface for providing a steadfast relationship between a
2 motor and a baseplate, the mounting interface comprising at least three surface points
3 forming a single plane acting as a common boundary between the motor and the
4 baseplate.

1 2. The mounting interface of claim 1 wherein the at least three surface
2 points further comprise pads.

1 3. The mounting interface of claim 1 wherein the at least three surface
2 points are coupled to the baseplate.

1 4. The mounting interface of claim 1 wherein the motor includes a mount
2 flange, wherein the at least three surface points are coupled to the mount flange.

1 5. The mounting interface of claim 1 wherein the motor includes a mount
2 flange and wherein the at least three surface points provide reduced contact area
3 between the mount flange and the baseplate, the reduced contact area lowering the
4 rigidity of the mount flange and the resonant frequencies.

1 6. The mounting interface of claim 1 wherein the at least three surface
2 points have a surface area, the surface area being chosen to reduce acoustical noise.

1 7. The mounting interface of claim 1 wherein the at least three surface
2 points are formed using a predetermined material, the predetermined material being
3 chosen to reduce acoustical noise.

1 8. The mounting interface of claim 1 wherein the at least three surface
2 points are positioned at predetermined radial angles therebetween, the predetermined
3 angles being chosen to reduce acoustical noise.

1 9. The mounting interface of claim 1 further comprising a damping ring
2 disposed on an inner side and between the at least three surface points for dissipating
3 distortion energy.

1 10. The mounting interface of claim 9 wherein the motor includes a mount
2 flange and wherein the damping ring is coupled to the mount flange.

1 11. The mounting interface of claim 10 wherein the damping ring further
2 comprises a vertical portion disposed on an outer surface of the at least three surface
3 points of the mounting interface, the vertical portion engaging with the baseplate to
4 dissipate energy resulting from sheer distortion between the baseplate and the at least
5 three surface points.

1 12. The mounting interface of claim 11 wherein the damping ring further
2 comprises a seal disposed on the vertical portion on an outer surface of the at least three
3 surface points of the mounting interface, the seal forming a barrier in a gap between the
4 mount flange and the baseplate.

1 13. The mounting interface of claim 9 wherein the damping ring is coupled
2 to the baseplate.

1 14. The mounting interface of claim 13 wherein the damping ring further
2 comprises a vertical portion disposed on an outer surface of the at least three surface
3 points of the mounting interface, the vertical portion engaging with the baseplate and
4 the at least three surface points to dissipate energy resulting from sheer distortion
5 between the baseplate and the at least three surface points.

1 15. The mounting interface of claim 14 wherein the damping ring further
2 comprises a seal disposed on the vertical portion on an outer surface of the at least three
3 surface points of the mounting interface, the seal forming a barrier in a gap between the
4 motor and the baseplate.

1 16. A data storage system, comprising:
2 a storage medium;
3 an actuator including a transducer disposed at a distal end of an actuator arm
4 an actuator motor, coupled to the actuator, for moving the transducer relative to
5 the storage medium;
6 a baseplate;
7 a spindle motor for rotating the storage medium;
8 a mount flange, coupled to the spindle motor, for coupling the spindle motor to
9 the baseplate; and
10 a mounting interface disposed between the mount flange and the baseplate, the
11 mounting interface comprising at least three surface points forming a single plane acting
12 as a common boundary between the mount flange and the baseplate.

1 17. The data storage system of claim 16 wherein the at least three surface
2 points further comprise pads.

1 18. The data storage system of claim 16 wherein the at least three surface
2 points are coupled to the baseplate.

1 19. The data storage system of claim 16 wherein the at least three surface
2 points are coupled to the mount flange.

1 20. The data storage system of claim 16 wherein the at least three surface
2 points provide reduced contact area between the mount flange and the baseplate, the
3 reduced contact area lowering the rigidity of the mount flange and the resonant
4 frequencies.

1 21. The data storage system of claim 16 wherein the at least three surface
2 points have a surface area, the surface area being chosen to reduce acoustical noise.

1 22. The data storage system of claim 16 wherein the at least three surface
2 points are formed using a predetermined material, the predetermined material being
3 chosen to reduce acoustical noise.

1 23. The data storage system of claim 16 wherein the at least three surface
2 points are positioned at predetermined radial angles therebetween, the predetermined
3 angles being chosen to reduce acoustical noise.

1 24. The data storage system of claim 16 further comprising a damping ring
2 disposed on an inner side and between the at least three surface points for dissipating
3 distortion energy.

1 25. The data storage system of claim 24 wherein the damping ring is coupled
2 to the mount flange.

1 26. The data storage system of claim 25 wherein the damping ring further
2 comprises a vertical portion disposed on an outer surface of the at least three surface
3 points of the mounting interface, the vertical portion engaging with the baseplate to
4 dissipate energy resulting from sheer distortion between the baseplate and the at least
5 three surface points

1 27. The data storage system of claim 26 wherein the damping ring further
2 comprises a seal disposed on the vertical portion on an outer surface of the at least three
3 surface points of the mounting interface, the seal forming a barrier in a gap between the
4 mount flange and the baseplate.

1 28. The data storage system of claim 24 wherein the damping ring is coupled
2 to the baseplate.

1 29. The data storage system of claim 28 wherein the damping ring further
2 comprises a vertical portion disposed on an outer surface of the at least three surface
3 points of the mounting interface, the vertical portion engaging with the baseplate and
4 the at least three surface points to dissipate energy resulting from sheer distortion
5 between the baseplate and the at least three surface points.

1 30. The data storage system of claim 29 wherein the damping ring further
2 comprises a seal disposed on the vertical portion on an outer surface of the at least three
3 surface points of the mounting interface, the seal forming a barrier in a gap between the
4 motor and the baseplate.

1 31. A method for reducing acoustic dynamics of a spindle motor, comprising
2 forming a mounting interface between a spindle motor and a baseplate, the mounting
3 interface comprising at least three surface points forming a single plane acting as a
4 common boundary between the spindle motor and the baseplate.

1 32. The method of claim 31 wherein the forming a mounting interface
2 between a spindle motor and a baseplate further comprises forming the mounting
3 interface on the baseplate.

1 33. The method of claim 31 wherein the forming a mounting interface
2 between a spindle motor and a baseplate further comprises forming the mounting
3 interface on a mount flange and coupling the mount flange to the spindle motor.

1 34. The method of claim 31 wherein the forming a mounting interface
2 further comprises forming at least three surface pads.

1 35. The method of claim 31 wherein the forming a mounting interface
2 further comprises reducing the contact area between the mount flange and the baseplate,
3 the reduced contact area lowering the resonant frequencies.

1 36. The method of claim 31 wherein the forming a mounting interface
2 further comprises forming at least three surface points having a surface area, the surface
3 area being chosen to reduce acoustical noise.

1 37. The method of claim 31 wherein the forming a mounting interface
2 further comprises forming at least three surface points using a predetermined material,
3 the predetermined material being chosen to reduce acoustical noise.

1 38. The method of claim 31 wherein the forming a mounting interface
2 further comprises forming at least three surface points with a predetermined radial angle
3 between each of the at least three surface points, the predetermined angles being chosen
4 to reduce acoustical noise.

1 39. The method of claim 31 further comprising forming a damping ring on
2 an inner side and between the at least three surface points for dissipating distortion
3 energy.

1 40. The method of claim 39 wherein the forming a mounting interface
2 between a spindle motor and a baseplate further comprises forming the mounting
3 interface on a mount flange and wherein the damping ring is coupled to the mount
4 flange.

1 41. The method of claim 40 wherein the forming of the damping ring further
2 comprises forming a vertical portion on an outer surface of the at least three surface
3 points of the mounting interface, the vertical portion engaging with the baseplate to
4 dissipate energy resulting from sheer distortion between the baseplate and the at least
5 three surface points.

1 42. The mounting interface of claim 41 wherein the forming of the damping
2 ring further comprises forming a seal on the vertical portion at an outer surface of the at
3 least three surface points of the mounting interface, the seal forming a barrier in a gap
4 between the mount flange and the baseplate.

1 43. The mounting interface of claim 39 wherein the damping ring is coupled
2 to the baseplate.

1 44. The mounting interface of claim 43 wherein the forming of the damping
2 ring further comprises forming a vertical portion on an outer surface of the at least three
3 surface points of the mounting interface, the vertical portion engaging with the baseplate
4 and the at least three surface points to dissipate energy resulting from sheer distortion
5 between the baseplate and the at least three surface points.

1 45. The mounting interface of claim 44 wherein the forming of the damping
2 ring further comprises forming a seal on the vertical portion at an outer surface of the at
3 least three surface points of the mounting interface, the seal forming a barrier in a gap
4 between the motor and the baseplate.

1 46. A mounting interface for providing a steadfast relationship between a
2 motor and a baseplate, the mounting interface comprising a damping ring disposed on
3 an inner side and between at least three surface points, the damping ring dissipating
4 distortion energy.

1 47. The mounting interface of claim 46 wherein the damping ring further
2 comprises a vertical portion disposed on an outer surface of the at least three surface
3 points of the mounting interface, the vertical portion engaging with the baseplate to
4 dissipate energy resulting from sheer distortion between the baseplate and the at least
5 three surface points.

1 48. The mounting interface of claim 47 wherein the damping ring further
2 comprises a seal disposed on the vertical portion on an outer surface of the at least three
3 surface points of the mounting interface, the seal forming a barrier in a gap between the
4 mount flange and the baseplate.

1 49. The mounting interface of claim 46 wherein the damping ring is coupled
2 to the baseplate.

1 50. The mounting interface of claim 49 wherein the damping ring further
2 comprises a vertical portion disposed on an outer surface of the at least three surface
3 points of the mounting interface, the vertical portion engaging with the baseplate and
4 the at least three surface points to dissipate energy resulting from sheer distortion
5 between the baseplate and the at least three surface points.

- 1 51. The mounting interface of claim 50 wherein the damping ring further
2 comprises a seal disposed on the vertical portion on an outer surface of the at least three
3 surface points of the mounting interface, the seal forming a barrier in a gap between the
4 motor and the baseplate.

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